

COMMONWEALTH OF VIRGINIA
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS FOR THE CONTROL AND ABATEMENT OF AIR POLLUTION

9 VAC 5 CHAPTER 40.
EXISTING STATIONARY SOURCES.

PART II.
Emission Standards.

ARTICLE 21.
Emissions Standards For Sulfuric Acid Production Units (Rule 4-21).

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9 VAC 5-40-2830. Applicability and designation of affected facility.

A. The affected facility to which the provisions of this article apply is each sulfuric acid production unit.

B. The provisions of this article apply throughout the Commonwealth of Virginia.

9 VAC 5-40-2840. Definitions.

A. For the purpose of these regulations and subsequent amendments or any orders issued by the board, the words or terms shall have the meaning given them in subsection C of this section.

B. As used in this article, all terms not defined here shall have the meaning given them in 9 VAC 5 Chapter 10 (9 VAC 5-10-10 et seq.), unless otherwise required by context.

C. Terms defined.

"Sulfuric acid mist" means sulfuric acid mist, as measured by Reference Method 8 or an equivalent or alternative method.

"Sulfuric acid production unit" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge; but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

9 VAC 5-40-2850. Standard for sulfur dioxide.

No owner or other person shall cause or permit to be discharged into the atmosphere from any sulfuric acid production unit any sulfur dioxide emissions in excess of a concentration of 2000 parts per million by volume and a mass emission rate of 27 pounds per ton of 100% acid produced when elemental sulfur is used for feed material, or 3500 ppm by volume and a mass emission rate of 45 pounds per ton of 100% acid produced when other raw materials such as recycled spent acid and ores are used as feed. These emissions levels may be exceeded for a period not longer than 24 hours during start-up.

9 VAC 5-40-2860. Standard for sulfuric acid mist.

No owner or other person shall cause or permit to be discharged into the atmosphere from any sulfuric acid production unit any sulfuric acid mist emissions in excess of 0.5 pound per ton of sulfuric acid produced, the production being expressed as 100% H_2SO_4 .

9 VAC 5-40-2870. Standard for visible emissions.

The provisions of Article 1 (9 VAC 5-40-60 et seq.) of this chapter (Emission Standards for Visible Emissions and Fugitive Dust/Emissions, Rule 4-1) apply.

9 VAC 5-40-2880. Standard for fugitive dust/emissions.

The provisions of Article 1 (9 VAC 5-40-60 et seq.) of this chapter (Emission Standards for Visible Emissions and Fugitive Dust/Emissions, Rule 4-1) apply.

9 VAC 5-40-2890. Standard for odor.

The provisions of Article 2 (9 VAC 5-40-130 et seq.) of this chapter (Emission Standards for Odor, Rule 4-2) apply.

9 VAC 5-40-2900. Standard for toxic pollutants.

The provisions of Article 3 (9 VAC 5-40-160 et seq.) of this chapter (Emission Standards for Toxic Pollutants, Rule 4-3) apply.

9 VAC 5-40-2910. Compliance.

The provisions of 9 VAC 5-40-20 (Compliance) apply.

9 VAC 5-40-2920. Test methods and procedures.

The provisions of 9 VAC 5-40-30 (Emission Testing) apply.

9 VAC 5-40-2930. Monitoring.

A. The provisions of 9 VAC 5-40-40 (Monitoring) apply.

B. Unless otherwise approved by the board, owners of sulfuric acid production units specified in subsection C of this section shall install, calibrate, maintain and operate systems for continuously monitoring and recording specified emissions in accordance with 9 VAC 5-40-40 and 9 VAC 5-40-41.

C. Sulfuric acid production units of greater than 300 tons per day production capacity (the production being expressed as 100% acid) shall be monitored for sulfur dioxide emissions.

D. The pollutant gas used to prepare calibration gas mixtures under paragraph 2.1, Performance Specifications 2 of Appendix B of 40 CFR 60 and for calibration checks under 9 VAC 5-40-41 shall be sulfur dioxide (SO₂). Reference Method 8 shall be used for conducting monitoring system performance evaluations under 9 VAC 5-40-41 except that only the sulfur dioxide portion of the Reference Method 8 results shall be used. The span shall be set at 1,000 ppm of sulfur dioxide.

E. The owner shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (lb/short ton). The conversion factor shall be determined, as a minimum, three times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods (e.g., the Reich Test, "Atmospheric Emissions from Sulfuric Acid Manufacturing Processes," see 9 VAC 5-20-21) and calculating the appropriate conversion factor for each eight-hour period as follows:

$$CF = k \left[\frac{1.000 - 0.15r}{r - s} \right]$$

where:

CF = conversion factor (lb/short ton per ppm).

- k = constant derived from material balance. For determining CF in English units, $k = 0.1306$.
- r = percentage of sulfur dioxide by volume entering the gas converter. Appropriate corrections must be made for air injection plants subject to the approval of the board.
- s = percentage of sulfur dioxide by volume in the emission to the atmosphere determined by the continuous monitoring system.

F. The average sulfur dioxide concentration in the flue gases shall be multiplied by the conversion factor to obtain the average sulfur dioxide emissions in units of the applicable standard. The owner shall record all conversion factors and values under subsection E of this section from which they were computed. (i.e., CF, r, and s).

9 VAC 5-40-2940. Notification, records and reporting.

A. The provisions of 9 VAC 5-40-50 (Notification, Records and Reporting) apply.

B. For the purpose of reports under 9 VAC 5-40-50 C, periods of excess emissions that shall be reported are defined as any three-hour period (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceeds the applicable standard under 9 VAC 5-40-2850.

9 VAC 5-40-2950. Registration.

The provisions of 9 VAC 5-20-160 (Registration) apply.

9 VAC 5-40-2960. Facility and control equipment maintenance or malfunction.

The provisions of 9 VAC 5-20-180 (Facility and Control Equipment Maintenance or Malfunction) apply.

9 VAC 5-40-2970. Permits.

A permit may be required prior to beginning any of the activities specified below and the provisions of 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) and 9 VAC 5 Chapter 80 (9 VAC 5-80-10 et seq.) may apply. Owners contemplating such action should contact the appropriate regional office for guidance.

1. Construction of a facility.
2. Reconstruction (replacement of more than half) of a facility.
3. Modification (any physical change to equipment) of a facility.
4. Relocation of a facility.

5. Reactivation (restart-up) of a facility.

HISTORICAL NOTES:

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